

VOLUME 31, PART II

SUBJECT INDEX

A

Abrasion Testing.

Symposium on Abrasion Testing of Rubber:

Introduction. Harlan A. Depew, 895.

Study of a Test for Tear Resistance of Vulcanized Rubber Compounds.
A. W. Carpenter and Z. E. Sargisson, 897.

Abrasion Tests of Vulcanized Rubber Compounds Using an Angle Abrasion Machine. J. L. Tronson and A. W. Carpenter, 908.

The Measurement of the Work Done in Punching a Rubber Cylinder from a Test Sheet. Harlan A. Depew, S. I. Hammond and E. G. Snyder, 923.

Abrasion Testing of Rubber with Bureau of Standards Type Machine.
Warren E. Glancy, 930.

Comparative Tests of Four Abrasion Machines. C. A. Klamann, 936.

Discussion on Abrasion Testing of Rubber, 942.

Absorption.

Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.

Weathering of Aggregates. Loring O. Hanson, 775. Discussion, 835.

Accelerated Tests.

Accelerated Corrosion Test of Sprayed Molten Metal Coatings Applied on Steel in a SO_2 - CO_2 -Air Atmosphere. Leopold Pessel, 294.

Accelerated Freezing and Thawing as a Quality Test for Concrete Aggregates.
F. C. Lang and C. A. Hughes, 435. Discussion, 453.

Weathering of Aggregates. Loring O. Hanson, 775. Discussion, 835.

The Weathering of Structural Clay Products: A Review. J. W. McBurney, 745. Discussion, 835.

Admixtures.

Crystalline Talc as an Admixture in Concrete. Frank R. Wicks, 534. Discussion, 549.

Aggregates.

Accelerated Freezing and Thawing as a Quality Test for Concrete Aggregates.
F. C. Lang and C. A. Hughes, 435. Discussion, 453.

The Performance of Concrete in Exposed Structures. Ephrem Viens, 725. Discussion, 835.

Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.

Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units.
C. A. Menzel, 607. Discussion, 681.

Weathering of Aggregates. Loring O. Hanson, 775. Discussion, 835.

Alloys.

- Damping Capacity of Materials. G. S. von Heydekampf, 157. Discussion, 172.
High-Temperature Characteristics of Metals Revealed by Bending. Howard Scott, 129.
The Static and Fatigue Properties of Brass. J. B. Kommers, 243. Discussion, 257.
Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.

Alloy Steel.

- Damping Capacity of Materials. G. S. von Heydekampf, 157. Discussion, 172.
Influence of Water Composition on Stress Corrosion. D. J. McAdam, Jr., 259.
Relation Between Magnetic Properties, Impact Strength and Hardness. Haakon Styri, 94. Discussion, 106.
Some Physical Properties of Hardened Tool Steel. J. V. Emmons, 47. Discussion, 77.
Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.

Aluminum.

- Damping Capacity of Materials. G. S. von Heydekampf, 157. Discussion, 172.
Fatigue Tests in Shear of Three Non-Ferrous Metals. H. F. Moore and R. E. Lewis, 236. Discussion, 257.
Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.
Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.

Apparatus.

- See Testing Apparatus.

Asphalt.

- Modern Paving Emulsions, Types, Characteristics and Test Methods. C. L. McKesson, 841. Discussion, 851.

B**Ball Bearing.**

- Relation Between Magnetic Properties, Impact Strength and Hardness. Haakon Styri, 94. Discussion, 106.

Bearing Metals.

- Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.

Bend Testing.

- High-Temperature Characteristics of Metals Revealed by Bending. Howard Scott, 129.

Bibliography.

- Bibliography on the Weathering of Concrete. F. R. McMillan, 814.
Bibliography on Weathering of Concrete Masonry Units. F. O. Anderegg, 822.
Bibliography on Weathering of Natural Stone. D. W. Kessler, 804.
Bibliography on the Weathering of Structural Clay Products. Douglas E. Parsons, 825.

Bituminous Materials.

Modern Paving Emulsions, Types, Characteristics and Test Methods. C. L. McKesson, 841. Discussion, 851.

Bond.

The Effect of Time Loading upon the Bond Stress Between Concrete and Steel. R. L. Brown and E. C. Clark, 690. Discussion, 701.

Brass.

Fatigue Tests in Shear of Three Non-Ferrous Metals. H. F. Moore and R. E. Lewis, 236. Discussion, 257.

The Static and Fatigue Properties of Brass. J. B. Kommers, 243. Discussion, 257.

Brick.

See also **Masonry Materials.**

Bibliography on the Weathering of Structural Clay Products. Douglas E. Parsons, 825.

Comparative Tests for Determining Resistance of Fire-Clay Brick to Thermal Spalling. R. A. Heindl, 703. Discussion, 712.

Tests of the Stability of Concrete Masonry Walls. F. E. Richart, P. M. Woodworth and R. B. B. Moorman, 661. Discussion, 681.

The Weathering of Structural Clay Products: A Review. J. W. McBurney, 745. Discussion, 835.

Brinell Hardness.

See **Hardness Testing.**

Bronze.

High-Temperature Characteristics of Metals Revealed by Bending. Howard Scott, 129.

Building Stone.

Bibliography on Weathering of Natural Stone. D. W. Kessler, 804.

Economic Aspects of Masonry Decay from Weathering. H. S. Brightly, 716. Discussion, 835.

Notes on the Weathering of Natural Building Stones. G. F. Loughlin, 759. Discussion, 835.

The Weathering of Slate. C. H. Behre, Jr., 768. Discussion, 835.

Building Tile.

See **Tile.**

Building Units.

See **Masonry Units.**

C**Castings.**

Corrosion of Malleable Iron. F. L. Wolf and L. A. Meisse, 422. Discussion, 434.

An Investigation of Methods to Determine the Machineability of Malleable Iron Castings. O. W. Boston, 388. Discussion, 419.

Shear Tests for Cast Iron. H. H. Judson, 304. Discussion, 312.

Symposium on Malleable Iron Castings, 317. Discussion, 381.

Cast Iron.

See also **Malleable Iron.**

Shear Tests for Cast Iron. H. H. Judson, 304. Discussion, 312.

Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.

Cement.

- The Performance of Concrete in Exposed Structures. Ephrem Viens, 725. Discussion, 835.
- Temperatures Developed in Mass Concrete and Their Effect upon the Compressive Strength. R. E. Davis and G. E. Troxell, 576.
- Tests of Concrete Conveyed from a Central Mixing Plant. Willis A. Slater, 510. Discussion, 526.
- Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units. C. A. Menzel, 607. Discussion, 681.

Central Mix Concrete.

See Ready-Mixed Concrete.

Chromium Steel.

- Influence of Water Composition on Stress Corrosion, D. J. McAdam, Jr., 259.
- Some Physical Properties of Hardened Tool Steel. J. V. Emmons, 47. Discussion, 77.

Clay Products.

- Bibliography on the Weathering of Structural Clay Products. Douglas E. Parsons, 825.
- Comparative Tests for Determining Resistance of Fire-Clay Brick to Thermal Spalling. R. A. Heindl, 703. Discussion, 712.
- Economic Aspects of Masonry Decay from Weathering. H. S. Brightly, 716. Discussion, 835.
- Specifications for Hollow Masonry Building Units. Douglas E. Parsons, 595. Discussions, 681.
- The Weathering of Structural Clay Products: A Review. J. W. McBurney, 745. Discussion, 835.
- Weathering Test Procedures for Clay Products. H. D. Foster, 795. Discussion, 835.

Coatings.

See Protective Coatings.

Compression Testing.

- Methods for Determining the Physical Properties of Certain Rubber Compounds at Low Stresses. R. L. Templin and R. G. Sturm, 882.
- Specifications for Hollow Masonry Building Units. Douglas E. Parsons, 595. Discussion, 681.
- The Static and Fatigue Properties of Brass. J. B. Kommers, 243. Discussion, 257.
- Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.
- Temperatures Developed in Mass Concrete and Their Effect upon the Compressive Strength. R. E. Davis and G. E. Troxell, 576.
- Tests of Concrete Conveyed from a Central Mixing Plant. Willis A. Slater, 510. Discussion, 526.
- Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units. C. A. Menzel, 607. Discussion, 681.
- Tests of the Stability of Concrete Masonry Walls. F. E. Richart, P. M. Woodworth and R. B. B. Moorman, 661. Discussion, 681.

Concrete.

- Accelerated Freezing and Thawing as a Quality Test for Concrete Aggregates. F. C. Lang and C. A. Hughes, 435. Discussion, 453.
- Bibliography on the Weathering of Concrete. F. R. McMillan, 814.
- Bibliography on Weathering of Concrete Masonry Units. F. O. Anderegg, 822.
- The Concrete Flow Trough. Donald M. Burmister, 554. Discussion, 570.
- Crystalline Talc as an Admixture in Concrete. Frank R. Wicks, 534. Discussion, 549.
- The Economic Significance of Specifications for Materials from the Point of View of a Producer of Concrete. J. P. H. Perry, 967.
- The Effect of Time Loading upon the Bond Stress Between Concrete and Steel. R. L. Brown and E. C. Clark, 690. Discussion, 701.
- The Performance of Concrete in Exposed Structures. Ephrem Viens, 725. Discussion, 835.
- Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.
- Temperatures Developed in Mass Concrete and Their Effect upon the Compressive Strength. R. E. Davis and G. E. Troxell, 576.
- Tests of Concrete Conveyed from a Central Mixing Plant. Willis A. Slater, 510. Discussion, 526.
- Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units. C. A. Menzel, 607. Discussion, 681.
- Tests of the Stability of Concrete Masonry Walls. F. E. Richart, P. M. Woodworth and R. B. B. Moorman, 661. Discussion, 681.
- The Use of Specifications for Concrete from the Point of View of the Consumer. Arthur R. Lord, 979.
- Weathering Test Procedures for Concrete. F. H. Jackson, 789. Discussion, 835.

Consistency.

- The Concrete Flow Trough. Donald M. Burmister, 554. Discussion, 570.
- Crystalline Talc as an Admixture in Concrete. Frank R. Wicks, 534. Discussion, 549.
- Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.
- Tests of Concrete Conveyed from a Central Mixing Plant. Willis A. Slater, 510. Discussion, 526.

Copper.

- Fatigue Tests in Shear of Three Non-Ferrous Metals. H. F. Moore and R. E. Lewis, 236. Discussion, 257.
- The Phenomenon of Slip in Plastic Materials. Edgar Marburg Lecture. A. Nadai, 11.
- Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.

Corrosion.

- Accelerated Corrosion Test of Sprayed Molten Metal Coatings Applied on Steel in a $\text{SO}_2\text{-CO}_2$ -Air Atmosphere. Leopold Pessel, 294.
- Corrosion of Malleable Iron. F. L. Wolf and L. A. Meisse, 422. Discussion, 434.
- Influence of Water Composition on Stress Corrosion. D. J. McAdam, Jr., 259.

Corrosion (Continued):

Oxygen as a Factor in Submerged Corrosion. Edward C. Groesbeck and Leo J. Waldron, 279. Discussion, 292.

Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.

Creep Testing.

Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.

Cryptometer.

The Photo-Electric Cryptometer. A. H. Pfund, 876. Discussion, 881.

Crystalline Talc.

Crystalline Talc as an Admixture in Concrete. Frank R. Wicks, 534. Discussion, 549.

Curing.

Temperatures Developed in Mass Concrete and Their Effect upon the Compressive Strength. R. E. Davis and G. E. Troxell, 576.

Cyclic Stress.

See **Fatigue Testing.**

D**Damping Capacity.**

Damping Capacity of Materials. G. S. von Heydekampf, 157. Discussion, 172.

Decay.

See **Weathering.**

Durability.

See **Weathering.**

Duralumin.

Fatigue Tests in Shear of Three Non-Ferrous Metals. H. F. Moore and R. E. Lewis, 236. Discussion, 257.

E**Economic Significance of Specifications.**

The Economic Significance of Specifications for Materials:

Introduction, 955.

Value of Specifications in the Manufacture of Steel. John Brunner, 959.

The Economic Significance of Specifications for Materials from the Standpoint of a User of Steel. P. Parke, 963.

The Economic Significance of Specifications for Materials from the Point of View of a Producer of Concrete. J. P. H. Perry, 967.

The Use of Specifications for Concrete from the Point of View of the Consumer. Arthur R. Lord, 979.

Specifications from the Standpoint of a Large Purchaser of Engineering and Special Materials. J. W. Bancker, 987.

Discussion on Motor Oils. H. C. Mougey, 996.

Efflorescence.

See **Weathering.**

Elasticity.

High-Temperature Characteristics of Metals Revealed by Bending. Howard Scott, 129.

Electrical Testing.

Relation Between Magnetic Properties, Impact Strength and Hardness. Haakon Styri, 94. Discussion, 106.

Symposium on Malleable Iron Castings, 346.

Thermomagnetic Analysis and the A_0 Transformation in 0.75-per-cent Carbon Steel. R. L. Sanford and G. A. Ellinger, 83.

The Unbalanced Alternating Current Bridge for Magnetic Analysis II. W. B. Kouwenhoven and J. H. Lampe, 107.

Emulsions.

Modern Paving Emulsions, Types, Characteristics and Test Methods. C. L. McKesson, 841. Discussion, 851.

Endurance Testing.

See **Fatigue Testing.**

Expansion of Concrete.

Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units. C. A. Menzel, 607. Discussion, 681.

Exposure Tests.

See **Corrosion; Weathering.**

F**Fatigue Testing.**

Damping Capacity of Materials. G. S. von Heydekampf, 157. Discussion, 172.

Endurance Testing of Steel: Comparison of Results Obtained with Rotating-Beam *versus* Axially-Loaded Specimens. R. D. France, 176. Discussion, 192.

Fatigue Testing of Wire. Stephen M. Shelton, 204. Discussion, 214.

Fatigue Tests in Shear of Three Non-Ferrous Metals. H. F. Moore and R. E. Lewis, 236. Discussion, 257.

Fatigue Tests of Weld Metal. R. E. Peterson and C. H. Jennings, 194. Discussion, 201.

Influence of Water Composition on Stress Corrosion. D. J. McAdam, Jr., 259.

A Seven-ton 50-Cycle Fatigue-Testing Machine. B. P. Haigh and T. S. Robertson, 221.

The Static and Fatigue Properties of Brass. J. B. Kommers, 243. Discussion, 257.

Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Symposium on Malleable Iron Castings, 345.

Fire Brick.

Comparative Tests for Determining Resistance of Fire-Clay Brick to Thermal Spalling. R. A. Heindl, 703. Discussion, 712.

Fire Tests.

Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units. C. A. Menzel, 607. Discussion, 681.

Flexure Testing.

- The Effect of Time Loading upon the Bond Stress Between Concrete and Steel. R. L. Brown and E. C. Clark, 690. Discussion, 701.
- Methods for Determining the Physical Properties of Certain Rubber Compounds at Low Stresses. R. L. Templin and R. G. Sturm, 882.
- Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.
- Tests of the Stability of Concrete Masonry Walls. F. E. Richart, P. M. Woodworth and R. B. B. Moorman, 661. Discussion, 681.

Flow.

- The Concrete Flow Trough. Donald M. Burmister, 554. Discussion, 570.
- The Phenomenon of Slip in Plastic Materials. Edgar Marburg Lecture. A. Nadai, 11.
- Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.
- Tests of Concrete Conveyed from a Central Mixing Plant. Willis A. Slater, 510. Discussion, 526.

Freezing-and-Thawing Tests.

- Accelerated Freezing and Thawing as a Quality Test for Concrete Aggregates. F. C. Lang and C. A. Hughes, 435. Discussion, 453.
- Symposium on Weathering Characteristics of Masonry Materials:
- Introduction. D. W. Kessler, 715.
 - Economic Aspects of Masonry Decay from Weathering. H. S. Brightly, 716.
 - The Performance of Concrete in Exposed Structures. Ephrem Viens, 725.
 - The Weathering of Structural Clay Products: A Review. J. W. McBurney, 745.
 - Notes on the Weathering of Natural Building Stones. G. F. Loughlin, 759.
 - The Weathering of Slate. C. H. Behre, Jr., 768.
 - Weathering of Aggregates. Loring O. Hanson, 775.
 - Weathering Test Procedures for Concrete. F. H. Jackson, 789.
 - Weathering Test Procedures for Clay Products. H. D. Foster, 795.
 - Weathering Test Procedures for Stone. D. W. Kessler, 799.
 - Bibliography on Weathering of Natural Stone. D. W. Kessler, 804.
 - Bibliography on the Weathering of Concrete. F. R. McMillan, 814.
 - Bibliography on Weathering of Concrete Masonry Units. F. O. Anderegg, 822.
 - Bibliography on the Weathering of Structural Clay Products. Douglas E. Parsons, 825.
 - Discussion on Weathering Characteristics of Masonry Materials, 835.

G**Galvanizing.**

- Corrosion of Malleable Iron. F. L. Wolf and L. A. Meisse, 422. Discussion, 434.
- Fatigue Testing of Wire. Stephen M. Shelton, 204. Discussion, 214.

Gamma-Ray Testing.

- Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Granite.

See Building Stone.

Gravel.

Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.

Gray Iron.

See Cast Iron.

H

Hardness Testing.

An Investigation of Methods to Determine the Machineability of Malleable Iron Castings. O. W. Boston, 388. Discussion, 419.

The Measurement of Large Brinell Impressions in Steel Rails. H. H. Morgan and J. R. Mooney, 118. Discussion, 124.

Relation Between Magnetic Properties, Impact Strength and Hardness. Haakon Styri, 94. Discussion, 106.

Some Physical Properties of Hardened Tool Steel. J. V. Emmons, 47. Discussion, 77.

Symposium on Malleable Iron Castings, 343.

Heat Treatment.

Relation Between Magnetic Properties, Impact Strength and Hardness. Haakon Styri, 94. Discussion, 106.

Some Physical Properties of Hardened Tool Steel. J. V. Emmons, 47. Discussion, 77.

Symposium on Malleable Iron Castings, 353.

The Unbalanced Alternating Current Bridge for Magnetic Analysis II. W. B. Kouwenhoven and J. H. Lampe, 107.

Hiding Power.

The Hiding Power of White Pigments. G. S. Haslam and D. L. Gamble, 860. Discussion, 869.

The Photo-Electric Cryptometer. A. H. Pfund, 876. Discussion, 881.

Hollow Tile.

See Tile.

Hysteresis Test.

Damping Capacity of Materials. G. S. von Heydekampf, 157. Discussion, 172.

I

Immersion Tests.

See Corrosion.

Impact Testing.

Relation Between Magnetic Properties, Impact Strength and Hardness. Haakon Styri, 94. Discussion, 106.

Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Symposium on Malleable Iron Castings, 343.

Instruments.

See Testing Apparatus.

Iron.

- Corrosion of Malleable Iron. F. L. Wolf and L. A. Meisse, 422. Discussion, 434.
- Endurance Testing of Steel: Comparison of Results Obtained with Rotating-Beam *versus* Axially-Loaded Specimens. R. D. France, 176. Discussion, 192.
- An Investigation of Methods to Determine the Machineability of Malleable Iron Castings. O. W. Boston, 388. Discussion, 419.
- Oxygen as a Factor in Submerged Corrosion. Edward C. Groesbeck and Leo J. Waldron, 279. Discussion, 292.
- Shear Tests for Cast Iron. H. H. Judson, 304. Discussion, 312.
- Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.
- Symposium on Malleable Iron Castings, 317. Discussion, 381.
- The Unbalanced Alternating Current Bridge for Magnetic Analysis II. W. B. Kouwenhoven and J. H. Lampe, 107.

L**Lead.**

- Accelerated Corrosion Test of Sprayed Molten Metal Coatings Applied on Steel in a $\text{SO}_2\text{-CO}_2$ -Air Atmosphere. Leopold Pessel, 294.

Light Alloys.

- See Alloys; Aluminum.

Limestone.

- See Building Stone.

M**Machineability.**

- An Investigation of Methods to Determine the Machineability of Malleable Iron Castings. O. W. Boston, 388. Discussion, 419.
- Symposium on Malleable Iron Castings, 349.

Magnetic Testing.

- Relation Between Magnetic Properties, Impact Strength and Hardness. Haakon Styri, 94. Discussion, 106.
- Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.
- Symposium on Malleable Iron Castings, 348.
- Thermomagnetic Analysis and the A_0 Transformation in 0.75-per-cent Carbon Steel. R. L. Sanford and G. A. Ellinger, 83.
- The Unbalanced Alternating Current Bridge for Magnetic Analysis II. W. B. Kouwenhoven and J. H. Lampe, 107.

Malleable Iron.

- Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.
- Symposium on Malleable Iron Castings:
- Preface, 317.
 - Introduction, 319.
 - Manufacture of Malleable Iron Castings, 323.
 - Properties of Malleable Iron, 334.
 - Supplementary Data and Discussion of Tensile Properties, 354.

- Higher Strength Malleable Iron, 368.
- Cupola Malleable Iron, 370.
- The Necessity for Cooperation Between Engineer-Designer and Foundry, 374.
- Résumé of Current Specifications for Malleable Iron Castings, 378.
- Discussion, Symposium on Malleable Iron Castings, 381.
- An Investigation of Methods to Determine the Machineability of Malleable Iron Castings. O. W. Boston, 388. Discussion on Machineability of Malleable Iron, 419.
- Corrosion of Malleable Iron. F. L. Wolf and L. A. Meisse, 422. Discussion on Corrosion of Malleable Iron, 434.

Marble.

See **Building Stone.**

Masonry Materials.

Symposium on Weathering Characteristics of Masonry Materials:

Introduction. D. W. Kessler, 715.

Economic Aspects of Masonry Decay from Weathering. H. S. Brightly, 716.

The Performance of Concrete in Exposed Structures. Ephrem Viens, 725.

The Weathering of Structural Clay Products: A Review. J. W. McBurney, 745.

Notes on the Weathering of Natural Building Stones. G. F. Loughlin, 759.

The Weathering of Slate. C. H. Behre, Jr., 768.

Weathering of Aggregates. Loring O. Hanson, 775.

Weathering Test Procedures for Concrete. F. H. Jackson, 789.

Weathering Test Procedures for Clay Products. H. D. Foster, 795.

Weathering Test Procedures for Stone. D. W. Kessler, 799.

Bibliography on Weathering of Natural Stone. D. W. Kessler, 804.

Bibliography on the Weathering of Concrete. F. R. McMillan, 814.

Bibliography on Weathering of Concrete Masonry Units. F. O. Anderegg, 822.

Bibliography on the Weathering of Structural Clay Products. Douglas E. Parsons, 825.

Discussion on Weathering Characteristics of Masonry Materials, 835.

Masonry Units.

Comparative Tests for Determining Resistance of Fire-Clay Brick to Thermal Spalling. R. A. Heindl, 703. Discussion, 712.

Specifications for Hollow Masonry Building Units. Douglas E. Parsons, 595. Discussion, 681.

Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units. C. A. Menzel, 607. Discussion, 681.

Tests of the Stability of Concrete Masonry Walls. F. E. Richart, P. M. Woodworth and R. B. B. Moorman, 661. Discussion, 681.

Metallography.

Some Physical Properties of Hardened Tool Steel. J. V. Emmons, 47. Discussion, 77.

Thermomagnetic Analysis and the A_0 Transformation in 0.75-per-cent Carbon Steel. R. L. Sanford and G. A. Ellinger, 83.

Monel Metal.

Influence of Water Composition on Stress Corrosion. D. J. McAdam, Jr., 259.

Mortar.

- The Concrete Flow Trough. Donald M. Burmister, 554. Discussion, 570.
Specifications for Hollow Masonry Building Units. Douglas E. Parsons, 595.
Discussion, 681.
Weathering of Aggregates. Loring O. Hanson, 775. Discussion, 835.

N**Natural Building Stone.**

See **Building Stone.**

Nickel Steel.

- Influence of Water Composition on Stress Corrosion. D. J. McAdam, Jr., 259.

Nitrided Alloys.

- Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.

O**Oils.**

- Discussion on Motor Oils. H. C. Mougey, 996.

P**Paints.**

- The Hiding Power of White Pigments. G. S. Haslam and D. L. Gamble, 860.
Discussion, 869.
The Photo-Electric Cryptometer. A. H. Pfund, 876. Discussion, 881.

Paving Materials.

- Modern Paving Emulsions, Types, Characteristics and Test Methods. C. L. McKesson, 841. Discussion, 851.
Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.

Photo-Electric Testing.

- The Photo-Electric Cryptometer. A. H. Pfund, 876. Discussion, 881.

Pigments.

- The Hiding Power of White Pigments. G. S. Haslam and D. L. Gamble, 860.
Discussion, 869.
The Photo-Electric Cryptometer. A. H. Pfund, 876. Discussion, 881.

Pittsburgh Regional Meeting.

- Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Plasticity.

- High-Temperature Characteristics of Metals Revealed by Bending. Howard Scott, 129.
The Phenomenon of Slip in Plastic Materials. Edgar Marburg Lecture. A. Nadai, 11.

Portland Cement.

See **Cement.**

Protective Coatings.

- Accelerated Corrosion Test of Sprayed Molten Metal Coatings Applied on Steel in a $\text{SO}_2\text{-CO}_2\text{-Air}$ Atmosphere. Leopold Pessel, 294.

Punching Test.

The Measurement of the Work Done in Punching a Rubber Cylinder from a Test Sheet. Harlan A. Depew, S. I. Hammond and E. G. Snyder, 923. Discussion, 942.

R

Rail Steel.

Endurance Testing of Steel: Comparison of Results Obtained with Rotating-Beam *versus* Axially-Loaded Specimens. R. D. France, 176. Discussion, 192.

The Measurement of Large Brinell Impressions in Steel Rails. H. H. Morgan and J. R. Mooney, 118. Discussion, 124.

Reinforced Concrete.

See **Concrete.**

Road Materials.

Modern Paving Emulsions, Types, Characteristics and Test Methods. C. L. McKesson, 841. Discussion, 851.

Rock.

See **Building Stone; Stone.**

Rockwell Hardness.

See **Hardness Testing.**

Roofing.

The Weathering of Slate. C. H. Behre, Jr., 768. Discussion, 835.

Rubber.

Methods for Determining the Physical Properties of Certain Rubber Compounds at Low Stresses. R. L. Templin and R. G. Sturm, 882.

Symposium on Abrasion Testing of Rubber:

Introduction. Harlan A. Depew, 895.

Study of a Test for Tear Resistance of Vulcanized Rubber Compounds.

A. W. Carpenter and Z. E. Sargisson, 897.

Abrasion Tests of Vulcanized Rubber Compounds Using an Angle Abrasion Machine. J. L. Tronson and A. W. Carpenter, 908.

The Measurement of the Work Done in Punching a Rubber Cylinder from a Test Sheet. Harlan A. Depew, S. I. Hammond and E. G. Snyder, 923.

Abrasion Testing of Rubber with Bureau of Standards Type Machine. Warren E. Glancy, 930.

Comparative Tests of Four Abrasion Machines. C. A. Klamann, 936.

Discussion on Abrasion Testing of Rubber, 942.

S

Sand.

See also **Aggregates.**

Shear Testing.

Fatigue Tests in Shear of Three Non-Ferrous Metals. H. F. Moore and R. E. Lewis, 236. Discussion, 257.

Shear Tests for Cast Iron. H. H. Judson, 304. Discussion, 312.

Slag.

Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.

Slate.

The Weathering of Slate. C. H. Behre, Jr., 768. Discussion, 835.

Slip.

The Effect of Time Loading upon the Bond Stress Between Concrete and Steel. R. L. Brown and E. C. Clark, 690. Discussion, 701.

The Phenomenon of Slip in Plastic Materials. Edgar Marburg Lecture. A. Nadai, 11.

Slump.

See **Consistency**.

Sodium Sulfate Tests.

See **Freezing-and-Thawing Tests**.

Soundness Tests.

See **Weathering**.

Spalling.

Comparative Tests for Determining Resistance of Fire-Clay Brick to Thermal Spalling. R. A. Heindl, 703. Discussion, 712.

Specifications.

The Economic Significance of Specifications for Materials:

Introduction, 955.

Value of Specifications in the Manufacture of Steel. John Brunner, 959.

The Economic Significance of Specifications for Materials from the Standpoint of a User of Steel. P. Parke, 963.

The Economic Significance of Specifications for Materials from the Point of View of a Producer of Concrete. J. P. H. Perry, 967.

The Use of Specifications for Concrete from the Point of View of the Consumer. Arthur R. Lord, 979.

Specifications from the Standpoint of a Large Purchaser of Engineering and Special Materials. J. W. Bancker, 987.

Discussion on Motor Oils. H. C. Mougey, 996.

Specifications for Hollow Masonry Building Units. Douglas E. Parsons, 595. Discussion, 681.

Summary of physical properties specified in current specifications for malleable iron castings, 379.

Stainless Steel.

Influence of Water Composition on Stress Corrosion. D. J. McAdam, Jr., 259.

Statistical Analysis.

Higher strength malleable iron, 368.

Supplementary data and discussion of tensile properties, 354.

Steel.

Accelerated Corrosion Test of Sprayed Molten Metal Coatings Applied on Steel in a $\text{SO}_2\text{-CO}_2\text{-Air}$ Atmosphere. Leopold Pessel, 294.

Damping Capacity of Materials. G. S. von Heydekampf, 157. Discussion, 172.

The Economic Significance of Specifications for Materials from the Standpoint of a User of Steel. P. Parke, 963.

The Effect of Time Loading upon the Bond Stress Between Concrete and Steel. R. L. Brown and E. C. Clark, 690. Discussion, 701.

Endurance Testing of Steel: Comparison of Results Obtained with Rotating-Beam *versus* Axially-Loaded Specimens. R. D. France, 176. Discussion, 192.

Fatigue Testing of Wire. Stephen M. Shelton, 204. Discussion, 214.

- High-Temperature Characteristics of Metals Revealed by Bending. Howard Scott, 129.
- Influence of Water Composition on Stress Corrosion. D. J. McAdam, Jr., 259.
- The Measurement of Large Brinell Impressions in Steel Rails. H. H. Morgan and J. R. Mooney, 118. Discussion, 124.
- Oxygen as a Factor in Submerged Corrosion. Edward C. Groesbeck and Leo J. Waldron, 279. Discussion, 292.
- The Phenomenon of Slip in Plastic Materials. Edgar Marburg Lecture. A. Nadai, 11.
- Relation Between Magnetic Properties, Impact Strength and Hardness. Haakon Styri, 94. Discussion, 106.
- Some Physical Properties of Hardened Tool Steel. J. V. Emmons, 47. Discussion, 77.
- Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.
- Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.
- Thermomagnetic Analysis and the A_0 Transformation in 0.75-per-cent Carbon Steel. R. L. Sanford and G. A. Ellinger, 83.
- The Unbalanced Alternating Current Bridge for Magnetic Analysis II. W. B. Kouwenhoven and J. H. Lampe, 107.
- Value of Specifications in the Manufacture of Steel. John Brunner, 959.
- Stethoscope.**
- Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.
- Stone.**
- See also **Aggregates.**
- Bibliography on Weathering of Natural Stone. D. W. Kessler, 804.
- Notes on the Weathering of Natural Building Stones. G. F. Loughlin, 759. Discussion, 835.
- Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.
- Weathering Test Procedures for Stone. D. W. Kessler, 799. Discussion, 835.

T

- Talc.**
- Crystalline Talc as an Admixture in Concrete. Frank R. Wicks, 534. Discussion, 549.
- Tear Test.**
- Study of a Test for Tear Resistance of Vulcanized Rubber Compounds. A. W. Carpenter and Z. E. Sargisson, 897. Discussion, 942.
- Temperature, Effect of.**
- High-Temperature Characteristics of Metals Revealed by Bending. Howard Scott, 129.
- Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.
- Symposium on Malleable Iron Castings, 345.
- Temperatures Developed in Mass Concrete and Their Effect upon the Compressive Strength. R. E. Davis and G. E. Troxell, 576.
- Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units. C. A. Menzel, 607. Discussion, 681.

Tension Testing.

- Endurance Testing of Steel: Comparison of Results Obtained with Rotating-Beam *versus* Axially-Loaded Specimens. R. D. France, 176. Discussion 192.
Methods for Determining the Physical Properties of Certain Rubber Compounds at Low Stresses. R. L. Templin and R. G. Sturm, 882.
A Seven-Ton 50-Cycle Fatigue-Testing Machine. B. P. Haigh and T. S. Robertson, 221.
Shear Tests for Cast Iron. H. H. Judson, 304. Discussion, 312.
The Static and Fatigue Properties of Brass. J. B. Kommers, 243. Discussion, 257.

Testing Apparatus.

- Accelerated Corrosion Test of Sprayed Molten Metal Coatings Applied on Steel in a $\text{SO}_2\text{-CO}_2$ -Air Atmosphere. Leopold Pessel, 294.
The Concrete Flow Trough. Donald M. Burmister, 554. Discussion, 570.
Endurance Testing of Steel: Comparison of Results Obtained with Rotating-Beam *versus* Axially-Loaded Specimens. R. D. France, 176. Discussion, 192.
Fatigue Testing of Wire. Stephen M. Shelton, 204. Discussion, 214.
Fatigue Tests in Shear of Three Non-Ferrous Metals. H. F. Moore and R. E. Lewis, 236. Discussion, 257.
High-Temperature Characteristics of Metals Revealed by Bending. Howard Scott, 129.
The Measurement of Large Brinell Impressions in Steel Rails. H. H. Morgan and J. R. Mooney, 118. Discussion, 124.
Methods for Determining the Physical Properties of Certain Rubber Compounds at Low Stresses. R. L. Templin and R. G. Sturm, 882.
Oxygen as a Factor in Submerged Corrosion. Edward C. Groesbeck and Leo J. Waldron, 279. Discussion, 292.
The Phenomenon of Slip in Plastic Materials. Edgar Marburg Lecture. A. Nadai, 11.
The Photo-Electric Cryptometer. A. H. Pfund, 876. Discussion, 881.
A Seven-Ton 50-Cycle Fatigue-Testing Machine. B. P. Haigh and T. S. Robertson, 221.
Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.
Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.
Symposium on Abrasion Testing of Rubber:
 Introduction. Harlan A. Depew, 895.
 Study of a Test for Tear Resistance of Vulcanized Rubber Compounds. A. W. Carpenter and Z. E. Sargisson, 897.
 Abrasion Tests of Vulcanized Rubber Compounds Using an Angle Abrasion Machine. J. L. Tronson and A. W. Carpenter, 908.
 The Measurement of the Work Done in Punching a Rubber Cylinder from a Test Sheet. Harlan A. Depew, S. I. Hammond and E. G. Snyder, 923.
 Abrasion Testing of Rubber with Bureau of Standards Type Machine. Warren E. Glancy, 930.
 Comparative Tests of Four Abrasion Machines. C. A. Klamann, 936.
 Discussion on Abrasion Testing of Rubber, 942.

Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units. C. A. Menzel, 607. Discussion, 681.

The Unbalanced Alternating Current Bridge for Magnetic Analysis II. W. B. Kouwenhoven and J. H. Lampe, 107.

Testing, Methods of.

(Methods of analysis, sampling, testing, etc., are indexed under the subjects covered by them.)

Accelerated Corrosion Test of Sprayed Molten Metal Coatings Applied on Steel in a $\text{SO}_2\text{-CO}_2$ -Air Atmosphere. Leopold Pessel, 294.

Accelerated Freezing and Thawing as a Quality Test for Concrete Aggregates. F. C. Lang and C. A. Hughes, 435. Discussion, 453.

Comparative Tests for Determining Resistance of Fire-Clay Brick to Thermal Spalling. R. A. Heindl, 703. Discussion, 712.

The Concrete Flow Trough. Donald M. Burmister, 554. Discussion, 570.

Damping Capacity of Materials. G. S. von Heydekampf, 157. Discussion, 172.

The Effect of Time Loading upon the Bond Stress Between Concrete and Steel. R. L. Brown and E. C. Clark, 690. Discussion, 701.

Endurance Testing of Steel: Comparison of Results Obtained with Rotating-Beam *versus* Axially-Loaded Specimens. R. D. France, 176. Discussion, 192.

High-Temperature Characteristics of Metals Revealed by Bending. Howard Scott, 129.

An Investigation of Methods to Determine the Machineability of Malleable Iron Castings. O. W. Boston, 388. Discussion, 419.

The Measurement of Large Brinell Impressions in Steel Rails. H. H. Morgan and J. R. Mooney, 118. Discussion, 124.

Methods for Determining the Physical Properties of Certain Rubber Compounds at Low Stresses. R. L. Templin and R. G. Sturm, 882.

Modern Paving Emulsions, Types, Characteristics and Test Methods. C. L. McKesson, 841. Discussion, 851.

Oxygen as a Factor in Submerged Corrosion. Edward C. Groesbeck and Leo J. Waldron, 279. Discussion, 292.

The Phenomenon of Slip in Plastic Materials. Edgar Marburg Lecture. A. Nadai, 11.

Some Physical Properties of Hardened Tool Steel. J. V. Emmons, 47. Discussion, 77.

Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.

Study of a Test for Tear Resistance of Vulcanized Rubber Compounds. A. W. Carpenter and Z. E. Sargisson, 897. Discussion, 942.

Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Tests of Concrete Conveyed from a Central Mixing Plant. Willis A. Slater, 510. Discussion, 526.

Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units. C. A. Menzel, 607. Discussion, 681.

Tests of the Stability of Concrete Masonry Walls. F. E. Richart, P. M. Woodworth and R. B. B. Moorman, 661. Discussion, 681.

Thermomagnetic Analysis and the A_0 Transformation in 0.75-per-cent Carbon Steel. R. L. Sanford and G. A. Ellinger, 83.

The Unbalanced Alternating Current Bridge for Magnetic Analysis II. W. B. Kouwenhoven and J. H. Lampe, 107.

Thermal Conductivity.

- Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.
Symposium on Malleable Iron Castings, 338.

Thermal Expansion.

- Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.
Symposium on Malleable Iron Castings, 338.

Thermomagnetic Analysis.

- Thermomagnetic Analysis and the A_0 Transformation in 0.75-per-cent Carbon Steel. R. L. Sanford and G. A. Ellinger, 83.

Tile.

- Bibliography on the Weathering of Structural Clay Products. Douglas E. Parsons, 825.
Specifications for Hollow Masonry Building Units. Douglas E. Parsons, 595.
Discussion, 681.
Weathering Test Procedures for Clay Products. H. D. Foster, 795. Discussion, 835.

Tinting Strength.

- The Hiding Power of White Pigments. G. S. Haslam and D. L. Gamble, 860.
Discussion, 869.

Tool Steel.

- Some Physical Properties of Hardened Tool Steel. J. V. Emmons, 47. Discussion, 77.

Torsion Testing.

- Fatigue Tests in Shear of Three Non-Ferrous Metals. H. F. Moore and R. E. Lewis, 236. Discussion, 257.
Some Physical Properties of Hardened Tool Steel. J. V. Emmons, 47. Discussion, 77.

V**Volume Change.**

- Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units. C. A. Menzel, 607. Discussion, 681.

Vulcanized Rubber.

- See Rubber.

W**Walls.**

- Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units. C. A. Menzel, 607. Discussion, 681.
Tests of the Stability of Concrete Masonry Walls. F. E. Richart, P. M. Woodworth and R. B. B. Moorman, 661. Discussion, 681.

Water.

- Influence of Water Composition on Stress Corrosion. D. J. McAdam, Jr., 259.
Oxygen as a Factor in Submerged Corrosion. Edward C. Groesbeck and Leo J. Waldron, 279. Discussion, 292.

Water-Cement Ratio.

Crystalline Talc as an Admixture in Concrete. Frank R. Wicks, 534. Discussion, 549.

Studies of Paving Concrete. F. H. Jackson and W. F. Kellermann, 457. Discussion, 495.

Wear.

See **Abrasion Testing.**

Weathering.

Symposium on Weathering Characteristics of Masonry Materials:

Introduction. D. W. Kessler, 715.

Economic Aspects of Masonry Decay from Weathering. H. S. Brightly, 716.

The Performance of Concrete in Exposed Structures. Ephrem Viens, 725.

The Weathering of Structural Clay Products: A Review. J. W. McBurney, 745.

Notes on the Weathering of Natural Building Stones. G. F. Loughlin, 759.

The Weathering of Slate. C. H. Behre, Jr., 768.

Weathering of Aggregates. Loring O. Hanson, 775.

Weathering Test Procedures for Concrete. F. H. Jackson, 789.

Weathering Test Procedures for Clay Products. H. D. Foster, 795.

Weathering Test Procedures for Stone. D. W. Kessler, 799.

Bibliography on Weathering of Natural Stone. D. W. Kessler, 804.

Bibliography on the Weathering of Concrete. F. R. McMillan, 814.

Bibliography on Weathering of Concrete Masonry Units. F. O. Anderegg, 822.

Bibliography on the Weathering of Structural Clay Products. Douglas E. Parsons, 825.

Discussion on Weathering Characteristics of Masonry Materials, 835.

Welding.

Fatigue Tests of Weld Metal. R. E. Peterson and C. H. Jennings, 194. Discussion, 201.

Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Wire.

Fatigue Testing of Wire. Stephen M. Shelton, 204. Discussion, 214.

Workability.

Crystalline Talc as an Admixture in Concrete. Frank R. Wicks, 534. Discussion, 549.

Wrought Iron.

Endurance Testing of Steel: Comparison of Results Obtained with Rotating-Beam *versus* Axially-Loaded Specimens. R. D. France, 176. Discussion, 192.

Z**Zinc.**

Corrosion of Malleable Iron. F. L. Wolf and L. A. Meisse, 422. Discussion, 434.

Summary of Proceedings of the Symposium on Effect of Temperature on the Properties of Metals, 9.

AUTHOR INDEX

A

- Abbott, F. D.**
Discussion, 947.
- Abrams, D. A.**
Discussion, 533.
- Amon, F. H.**
Discussion, 943, 944.
- Anderegg, F. O.**
Bibliography on Weathering of Concrete Masonry Units, 822.
Discussion, 570, 838.
- Ashdown, H. H.**
Discussion, 78.

B

- Bancker, J. W.**
Specifications from the Standpoint of a Large Purchaser of Engineering and Special Materials, 987.
- Bassett, W. H.**
Discussion, 257.
- Behre, C. H., Jr.**
The Weathering of Slate, 768.
- Bornstein, Hyman.**
Discussion, 314.
- Boston, O. W.**
An Investigation of Methods to Determine the Machineability of Malleable Iron Castings, 388.
Discussion, 420.
- Brightly, H. S.**
Economic Aspects of Masonry Decay from Weathering, 716.
Discussion, 687, 838, 839.
- Brown, R. L.**
The Effect of Time Loading upon the Bond Stress Between Concrete and Steel, 690.
- Brunner, John.**
Value of Specifications in the Manufacture of Steel, 959.
- Burmister, D. M.**
The Concrete Flow Trough, 554.
Discussion, 573, 574, 575.

C

Capp, J. A.

Discussion, 315.

Candy, A. M.

Modern Applications of Arc Welding. Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Carpenter, A. W.

Abrasion Tests of Vulcanized Rubber Compounds Using an Angle Abrasion Machine. 908.

Study of a Test for Tear Resistance of Vulcanized Rubber Compounds, 897.

Discussion, 942, 943, 944, 946, 947, 951, 954.

Chapman, Cloyd M.

Discussion, 530, 573, 701.

Chase, F. D.

Introduction to the Economic Significance of Specifications for Materials, 956.

Clark, E. C.

The Effect of Time Loading upon the Bond Stress Between Concrete and Steel, 690.

Conrow, A. D.

Discussion, 571.

D

Davis, R. E.

Temperatures Developed in Mass Concrete and Their Effect upon the Compressive Strength, 576.

Dawson, J. R.

Stethoscopic Examination of Welded Products. Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 8.

de Forest, A. V.

Discussion, 172, 216.

Depew, H. A.

Introduction to Symposium on Abrasion Testing of Rubber, 895.

The Measurement of the Work Done in Punching a Rubber Cylinder from a Test Sheet, 923.

Discussion, 942, 943, 944, 945, 952, 953.

Doan, G. E.

Gamma-Ray Testing of Welds. Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 8.

Dunagan, W. M.

Discussion, 531.

Dunlap, W. M.

Welding Processes Applicable to Aluminum. Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Dutton, H. H.

Discussion, 687.

E**Egger, E. J. W.**

Recent Developments in Gas Welding and Cutting. Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Ellinger, G. A.

Thermomagnetic Analysis and the A_0 Transformation in 0.75-per-cent Carbon Steel, 83.

Emmons, J. V.

Some Physical Properties of Hardened Tool Steel, 47.
Discussion, 81.

F**Farkell, G. C.**

Discussion, 124.

Foster, H. D.

Weathering Test Procedures for Clay Products, 795.

France, R. D.

Endurance Testing of Steel: Comparison of Results Obtained with Rotating-Beam *versus* Axially-Loaded Specimens, 176.

Fraser, O. B. J.

Discussion, 292.

Freeman, J. R., Jr.

Discussion, 192, 218.

French, H. J.

Discussion, 79.

Fuller, T. S.

Discussion, 218.

G**Gamble, D. L.**

The Hiding Power of White Pigments, 860.

Gerke, R. H.

Discussion, 942.

Gillett, H. W.

Discussion, 193.

Glancy, W. E.

Abrasion Testing of Rubber with Bureau of Standards Type Machine, 930.

Goldbeck, A. T.

Discussion, 505.

Gonnerman, H. F.

Discussion, 454, 506, 682.

Greenman, R. S.

Discussion, 835.

Groesbeck, E. C.

Oxygen as a Factor in Submerged Corrosion, 279.

Grossman, M. A.

Discussion, 80.

H

Haigh, B. P.

A Seven-ton 50-Cycle Fatigue Testing Machine, 221.

Hallett, R. L.

Discussion, 869, 881.

Hammond, S. I.

The Measurement of the Work Done in Punching a Rubber Cylinder from a Test Sheet, 923.

Hanson, L. O.

Weathering of Aggregates, 775.

Harrington, R. H.

Discussion, 77.

Harvey, F. A.

Discussion, 712.

Haslam, G. S.

The Hiding Power of White Pigments, 860.

Heindl, R. A.

Comparative Tests for Determining Resistance of Fire-Clay Brick to Thermal Spalling, 703.

Herz, Alfred.

Discussion, 943, 944.

Hubbard, Prévost.

Discussion, 855, 856.

Hughes, C. A.

Accelerated Freezing and Thawing as a Quality Test for Concrete Aggregates, 435.

Discussion, 455.

Hughes, R. E.

Discussion, 952.

I

Ickes, E. T.

Discussion, 77.

J

Jackson, F. H.

Studies of Paving Concrete, 457.

Weathering Test Procedures for Concrete, 789.

Discussion, 509.

Jasper, T. M.

Fatigue and Impact Testing of Welded Products. Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 8.

Jeffries, Zay.

Introduction to the Economic Significance of Specifications for Materials, 957.

Jenks, G. F.

Inspection of Welding Made by the Watertown Arsenal. Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 8.

Jennings, C. H.

Fatigue Tests of Weld Metal, 194.

Discussion, 202.

Judson, H. H.

Shear Tests for Cast Iron, 304.

Discussion, 315.

K**Kellermann, W. F.**

Studies of Paving Concrete, 457.

Discussion, 509.

Kelly, L. J.

Discussion, 381, 384.

Kennedy, R. E.

Preface to Symposium on Malleable Iron Castings, 317.

Discussion, 384.

Kessler, D. W.

Introduction to Symposium on Weathering Characteristics of Masonry Materials, 715.

Bibliography on Weathering of Natural Stone, 804.

Weathering Test Procedures for Stone, 799.

Discussion, 839.

Klaman, C. A.

Comparative Tests of Four Abrasion Machines, 936.

Kommers, J. B.

The Static and Fatigue Properties of Brass, 243.

Discussion, 218, 257.

Kouwenhoven, W. B.

The Unbalanced Alternating Current Bridge for Magnetic Analysis II, 107.

Kraus, R.

Welding Inspection. Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 8.

L**Lampe, J. H.**

The Unbalanced Alternating Current Bridge for Magnetic Analysis II, 107.

Lang, F. C.

Accelerated Freezing and Thawing as a Quality Test for Concrete Aggregates, 435.

Discussion, 455, 506.

Lewis, R. E.

Fatigue Tests in Shear of Three Non-Ferrous Metals, 236.

Lincoln, J. C.

Discussion, 201.

Lipetz, A. I.

Discussion, 172.

Llewellyn, F. T.

General Survey of Welding Processes. Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Lord, A. R.

The Use of Specifications for Concrete from the Point of View of the Consumer, 979.

Loughlin, G. F.

Notes on the Weathering of Natural Building Stones, 759.

Lounsberry, F. B.

Discussion, 81.

M

Mackenzie, K. G.

Introduction to the Economic Significance of Specifications for Materials, 955, 957.

MacKenzie, J. T.

Discussion, 315.

MacPherran, R. S.

Discussion, 314.

McAdam, D. J., Jr.

Influence of Water Composition on Stress Corrosion, 259.

McBurney, J. W.

The Weathering of Structural Clay Products: A Review, 745.

McDowell, J. S.

Discussion, 712.

McKesson, C. L.

Modern Paving Emulsions, Types, Characteristics and Test Methods, 841.

Discussion, 854, 855, 856.

McMillan, F. R.

Bibliography on the Weathering of Concrete, 814.

Meisse, L. A.

Corrosion of Malleable Iron, 422.

Discussion, 382, 434.

Menzel, C. A.

Tests of the Fire Resistance and Stability of Walls of Concrete Masonry Units, 607.

Miller, J. S.

Discussion, 851.

Mooney, J. R.

The Measurement of Large Brinell Impressions in Steel Rails, 118.
Discussion, 127.

Moore, H. F.

Fatigue Tests in Shear of Three Non-Ferrous Metals, 236.
Discussion, 172, 215.

Moore, R. R.

Discussion, 217.

Moorman, R. B. B.

Tests of the Stability of Concrete Masonry Walls, 661.

Morgan, H. H.

The Measurement of Large Brinell Impressions in Steel Rails, 118.
Discussion, 127.

Mougey, H. C.

Discussion on Motor Oils, 996.

N**Nadai, A.**

The Phenomenon of Slip in Plastic Materials: Edgar Marburg Lecture, 11.

P**Parke, P.**

The Economic Significance of Specifications for Materials from the Standpoint
of a User of Steel, 963.

Parsons, D. E.

Bibliography on the Weathering of Structural Clay Products, 825.
Specifications for Hollow Masonry Building Units, 595.
Discussion, 686.

Pearson, J. C.

Discussion, 573.

Perry, J. P. H.

The Economic Significance of Specifications for Materials from the Point of
View of a Producer of Concrete, 967.

Pessel, Leopold.

Accelerated Corrosion Test of Sprayed Molten Metal Coatings Applied on
Steel in a $\text{SO}_2\text{-CO}_2\text{-Air}$ Atmosphere, 294.

Peterson, R. E.

Fatigue Tests of Weld Metal, 194.
Discussion, 174, 201, 202, 214.

Phelps, S. M.

Discussion, 712.

Pfund, A. H.

The Photo-Electric Cryptometer, 876.

Putnam, W. P.

Preface to Symposium on Malleable Iron Castings, 317.
Discussion, 384.

R

- Rees, O. T.**
Discussion, 953.
- Richart, F. E.**
Tests of the Stability of Concrete Masonry Walls, 661.
Discussion, 687, 701.
- Robertson, T. S.**
A Seven-Ton 50-Cycle Fatigue Testing Machine, 221.
- Robbins, F. M.**
Preface to Symposium on Malleable Iron Castings, 317.
Discussion, 384.
- Roshong, R. G.**
Discussion, 950.
- Rupert, F. E.**
Discussion, 945.

S

- Sanford, R. L.**
Thermomagnetic Analysis and the A_0 Transformation in 0.75-per-cent Carbon Steel, 83.
- Sargisson, Z. E.**
Study of a Test for Tear Resistance of Vulcanized Rubber Compounds, 897.
- Scholer, C. H.**
Discussion, 453.
- Schwartz, H. A.**
Preface to Symposium on Malleable Iron Castings, 317.
Discussion, 384, 419.
- Scott, D. C.**
Discussion, 945, 947, 951, 953.
- Scott, Howard.**
High-Temperature Characteristics of Metals Revealed by Bending, 129.
Discussion, 79, 106.
- Shaw, John.**
Discussion, 312.
- Shelton, S. M.**
Fatigue Testing of Wire, 204.
Discussion, 219.
- Shuman, E. C.**
Discussion, 532.
- Small, A. R.**
Discussion, 681.
- Slater, W. A.**
Tests of Concrete Conveyed from a Central Mixing Plant, 510.
Discussion, 530, 531.

Smith, G. A.

Discussion, 549, 574.

Smith, H. E.

Discussion, 201.

Snyder, E. G.

The Measurement of the Work Done in Punching a Rubber Cylinder from a Test Sheet, 923.

Speller, F. N.

The Quality of Materials for Fusion Welding. Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Discussion, 126, 293.

Sturm, R. G.

Methods for Determining the Physical Properties of Certain Rubber Compounds at Low Stresses, 882.

Discussion, 173.

Stutz, G. F. A.

Discussion, 873.

Styri, Haakon.

Relation Between Magnetic Properties, Impact Strength and Hardness, 94.

Discussion, 106.

Swanger, W. H.

Discussion, 218.

Swayze, M. A.

Discussion, 531.

T

Templin, R. L.

Methods for Determining the Physical Properties of Certain Rubber Compounds at Low Stresses, 882.

Texter, C. R.

The Quality of Materials for Fusion Welding. Summary of Proceedings of the Pittsburgh Regional Meeting—Symposium on Welding, 7.

Thompson, G. W.

Discussion, 881.

Touceda, Enrique.

Preface to Symposium on Malleable Iron Castings, 317.

Discussion, 384.

Tronson, J. L.

Abrasion Tests of Vulcanized Rubber Compounds Using an Angle Abrasion Machine, 908.

Troxell, G. E.

Temperatures Developed in Mass Concrete and Their Effect upon the Compressive Strength, 576.

V

Valentine, I. R.

- Preface to Symposium on Malleable Iron Castings, 317.
Discussion, 384.

Vanick, J. S.

- Discussion, 434.

Viens, Ephrem.

- The Performance of Concrete in Exposed Structures, 725

von Heydekampf, G. S.

- Damping Capacity of Materials, 157.
Discussion, 192.

W

Waldron, L. J.

- Oxygen as a Factor in Submerged Corrosion, 279.

Walker, Stanton.

- Discussion, 495, 526.

Warwick, C. L.

- Preface to Symposium on Malleable Iron Castings, 317.
Discussion, 384.

Watts, T. R.

- Magnetic Methods of Testing Butt Welds. Summary of Proceedings of the
Pittsburgh Regional Meeting—Symposium on Welding, 8.

Westgren, A. F.

- Discussion, 81.

Wicks, F. R.

- Crystalline Talc as an Admixture in Concrete, 534.
Discussion, 551, 574.

Wilk, Benjamin.

- Discussion, 685.

Wolf, F. L.

- Corrosion of Malleable Iron, 422.
Discussion, 382.

Woodworth, P. M.

- Tests of the Stability of Concrete Masonry Walls, 661.

Z

Zimmerman, O. B.

- Preface to Symposium on Malleable Iron Castings, 317.
Discussion, 384.